

ADDITIONAL RECORDS OF CHIRONOMIDAE (INSECTA: DIPTERA) IN IRELAND WITH NEW RECORDS FROM COUNTIES LONGFORD, MAYO AND MEATH

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Abstract

Examination of recently collected adult male and pupal exuviae, as well as specimens collected in previous years, gave additional records for 32 species of Chironomidae (Diptera, Insecta) from Counties Donegal, Dublin, Longford, Mayo and Meath in HAs (Hydrometric Areas) 8, 9, 26, 32, 37 and 38. Three species are first records for County Longford - *Chironomus* (*Chironomus*) *piger* Strenzke, 1956, *Chironomus* (*C.*) *plumosus* (Linnaeus, 1758) and *Microtendipes pedellus* (De Geer, 1776). One species, *Tanytarsus sylvaticus* (van der Wulp, 1859) is new for County Mayo and HA32 while *Apsectrotanypus trifascipennis* (Zetterstedt, 1838) is documented for the first time in County Meath and HA8. Two species, *Limnophyes gurgicola* (Edwards, 1929) and *Dicrotendipes notatus* (Meigen, 1818) are new records for HA8 and *Smittia contingens* (Walker, 1856) is confirmed in HA8.

Key words: Chironomidae, Diptera, records, County, Hydrometric Area, distribution, Ireland.

Introduction

A comprehensive review of the distribution of Irish Chironomidae was given by Murray *et al.* (2018) based on known records up to December 2017. Since then, additional records were documented by Murray (2018, 2019a, 2019b), Murray and Langton (2018) and Murray and O'Connor (2018). It is the author's strategy to add to information on the occurrence and distribution of Chironomidae in Ireland on an ongoing basis, through collection of new material and by review of previously collected preserved bulk samples or slide mounted specimens.

Collections of Chironomidae in 2020 commenced in January and February around the author's home at Meadesbrook, near Ashbourne, County Meath and it was intended to continue collection there and at other locations in the country during the following months. An opportunity arose at the beginning of March to collect from an artificial lake at the Centre Parc resort, near Ballymahon, County Longford. However, because of the onset of the Covid-19 pandemic in Ireland in mid-March, and the consequent "lockdown" with enforced restriction on travel, other planned collection trips in 2020 were unavoidably cancelled. Nevertheless,

collections of Chironomidae continued around Meadesbrook and a review of specimens in existing collections was undertaken. This paper reports on the outcome of these efforts up to September 2020 and gives new distribution data, mostly based on pupal exuviae, from Counties Longford and Meath as well as from collections in earlier years in Counties Donegal and Mayo. One record from 1946 is given for County Dublin based on examination of a previously undetermined slide preparation by Carmel F. Humphries. The records detailed here add to knowledge of chironomid species distribution in those counties and in Hydrometric Areas 8, 9, 26, 32, 37 and 38.

Abbreviations used

EPA - Environmental Protection Agency; HA(s) - Hydrometric Area(s); leg. - collected by; Pe - pupal exuviae; ♂ - adult male imago.

Methods

Adult male chironomids were collected by aerial sweep netting. Pupal exuviae were collected by drift net in the stream examined or by skimming surface waters with a fine mesh net in lake littoral regions, water troughs and rainwater tanks. Adult males were identified from Langton and Pinder (2007) with further reference to Reiss and Fittkau (1971) for species of *Tanytarsus*. Pupal exuviae were slide mounted as temporary mounts in glycerine or as permanent mounts in Euparal and identified from Langton and Visser (2003). Records are given by County and Hydrometric Area (see <www.epa.ie> for details of HAs in Ireland) from seven sites - two in County Donegal (HAs 37 and 38), one each in Counties Dublin (HA9), Longford (HA26) and Mayo (HA32) and two adjacent sites in County Meath (HA8). Locality details of sampling sites, with six-figure Irish Grid Reference numbers are detailed below. Information on life cycle stages (♂ or Pe) obtained and date(s) of collection are given with each species record(s). Records are based on personal collections by the author unless otherwise stated.

Sampling sites

The locations in Counties and Hydrometric Areas from which records are reported are as follows:

DONEGAL: HA37 - Lough Eske, Blue Stack Mountains (G973844); HA38 - Lough Nageeragh, Dungloe (B761100).

DUBLIN: HA9 - Bohernabreena Reservoir, aquaduct (O101208).

LONGFORD: HA26 - Ballymahon artificial lake at Center Parc Resort (N196564).

MAYO: HA 32 - Westport Woods Hotel Grounds, Westport (L985843).

MEATH: HA8 - Meadesbrook, Kilmoon, Ashbourne. Records are reported from two sites: Meadesbrook-1 garden/yard (O040594), adults and pupal exuviae from a variety of rainwater filled containers including water barrels, tanks, pots, bird bath etc. (Plate 1); Meadesbrook-2 stream and surrounds (O038594), aerial sweep net and drift net collections. This is a shallow, low gradient, shaded rural stream, approximately 1.5m wide and 10-30cm deep (Plate 2).

Results

Distribution data is provided for 32 species, four in the Subfamily Tanypodinae, one in the Subfamily Diamesinae, fifteen in the Subfamily Orthoclaudiinae and twelve in the Subfamily Chironominae (Chironomini, 6; Tanytarsini, 6). The majority of records are from County Meath (HA8) in the vicinity of the author's home at Meadesbrook.

Subfamily TANYPODINAE

[References to previous records of Tanypodinae are from Murray *et al.* (2013) unless stated otherwise]

***Apsectrotanypus trifascipennis* (Zetterstedt, 1838) New to County Meath and HA8**

MEATH: HA8 - Meadesbrook-2, Pe, 5 May 2020.

There are 31 records of this species at 26 locations in Ireland from ponds, slow-flowing streams and lake littoral regions (Murray and O'Connor, 2018; Murray *et al.*, 2018). This is the first record of *Apsectrotanypus trifascipennis* from County Meath and HA8.

The majority of records (16) in Ireland are in the River Shannon catchment in HAs 25 and 26. The species was first collected in Ireland in 1981 in HA9 from a pond on the campus of University College Dublin (Murray and Ashe, 1983).

***Conchapelopia melanops* (Meigen, 1818)**

MEATH: HA8 - Meadesbrook-2, Pe, 5 May 2020.

Conchapelopia melanops is widely distributed in Ireland with records from 100 locations (Murray, 2019 b; Murray *et al.*, 2018). The emergence period of *C. melanops* in Ireland extends from the month of April to the beginning of October and the majority of records have been during the months of July and August. There are four previous records of the species from the present site at Meadesbrook, the first of which was on 31 May 1974 and the most recent in September 2006.

***Macropelopia nebulosa* (Meigen, 1804)**

MEATH: HA8 - Meadesbrook-2, Pe, 5 May 2020.

This is a common species in Ireland with records from 150 locations throughout the country (Murray, 2019b; Murray *et al.*, 2018). There are three previous records at this site at Meadesbrook where it was first collected in April 1995 and most recently in May 2006.

***Zavrelimyia (Zavrelimyia) nubila* (Meigen, 1830)**

MEATH: HA8 - Meadesbrook-1, Pe, 29 March, 8 May and 8 September 2020.

This species is only known in Ireland from three locations, two in County Meath (including the present location) and one in County Wicklow. The first Irish record was from collection of an adult male at Meadesbrook in July 1968 (Murray, 1972) and it has subsequently been recorded at this location on a further eight occasions between 1997 and 2019. Pupal exuviae from a second location in County Meath, at Ardsallagh, Navan in the adjacent HA7, were collected in 1986 and 2000 from an animal drinking trough. The third location for this species was recently documented from County Wicklow in collections made in 1984 (Duigan, 1989) from a pond at Powerscourt Demense (Murray, 2018).

According to Cranston and Epler (2013), larvae of the majority of *Zavrelimyia* species inhabit sandy detritus-rich sediments in springs and in slow-flowing streams close to springs. However Fittkau (1962) considered larvae of *Z. nubila* as a characteristic species of small woodland pools and garden ponds (sometimes ephemeral) while Langton and Visser (2003) remarked on their occurrence also in lake littoral zones as well as in stagnant waters. More recently *Z. nubila* has been documented from man-made municipal ponds and fountains in Sweden by Hamerlik and Buková (2015) and in Slovakia by Oboňa *et al.* (2017).

Subfamily DIAMESINAE

***Diamesa (Diamesa) insignipes* Kieffer, 1908**

DUBLIN: HA9 - Aquaduct at Bohernabreena Reservoir, Pe, 26 November 1946, leg. C. F. Humphries.

This record is based on a recently discovered unidentified slide preparation labelled “*Diamesa* indet.” in the collections of C. F. Humphries. This record from 1946 is the earliest evidence of occurrence of the species in Ireland. There are fourteen other records in Ireland (Murray *et al.*, 2018) of which three are in the River Dodder catchment in HA9, two from 1968 (Murray, 1972) and one from 1974 (Dowling and Murray, 1981).

Subfamily ORTHOCLADIINAE

[Unless stated otherwise references to previous records of Orthocladiinae in Ireland are from Murray *et al.* (2014)]

***Acricotopus lucens* (Zetterstedt, 1850)**

MEATH: HA8 - Meadesbrook-1, ♂, Pe, 8 May 2020.

Larvae of *Acricotopus lucens* are typically found in standing waters and littoral regions of lakes, ponds and pools and occasionally in slow-flowing small streams (Andersen *et al.*, 2013).

The species is already known from the stream (Meadesbrook-2), approximately 200m distant from the rainwater barrel in the yard where pupal exuviae and adult males were collected.

***Brillia bifida* (Kieffer, 1909)**

MEATH: HA8 - Meadesbrook-1, ♂, 18 November 2019 and 1 January 2020.

There are now 14 records of *Brillia bifida* at this location at which it was first recorded in July 1967 (Murray, 1972). The species has a widespread distribution in Ireland and is known from 136 locations.

***Brillia longifurca* Kieffer, 1921**

MEATH: HA8 - Meadesbrook-2, ♂ and Pe, 4 May 2020.

This species has been previously documented in November 2012. There are fewer records of *Brillia longifurca* than *B. bifida* in Ireland and it is currently known from 69 locations, one more than cited by Murray *et al.* (2018) since it was collected from the River Glyde, County Louth, in September 2018 (Murray, 2019b).

***Eukiefferiella claripennis* (Lundbeck, 1898)**

MEATH: HA8 - Meadesbrook-2, Pe, 2 February and 4 May 2020.

Eukiefferiella claripennis has a widespread distribution in rivers and streams in Ireland with records from almost 150 locations throughout the country. It is a multi-voltine species with records in Ireland spanning the months from January to December. There are four previous records from the stream at Meadesbrook where it was first recorded in April 1982.

***Limnophyes gurgicola* (Edwards, 1929) New to HA8**

MEATH: HA8 - Meadesbrook-1, ♂ and Pe, 14 April 2020.

While this is the first record of *Limnophyes gurgicola* from HA8, there is one previous record of the species in County Meath in HA7 from a bog pool at Girley Bog, Fordestown (Murray, 2016; Murray *et al.*, 2018).

***Metriocnemus (Inermipupa) carmencitabertarum* Langton & Cobo, 1997**

MEATH: HA8 - Meadesbrook-1, ♂ and Pe, 29 March, 6 and 8 September 2020.

This species was described by Langton and Cobo (1997) based on adult males and female specimens reared from larvae collected from rain-filled pools, with a substratum of moss debris, in granitic depressions in north-western Spain. Since then the species has been reported from an array of anthropogenic habitats, including rainwater-filled troughs, buckets, tanks, bird-baths etc. It was first recorded from Ireland in County Meath in HA7 in 2012 (Murray, 2012a) and is now documented at 13 locations in the country. It is well established in a variety of outdoor rainwater filled containers around the author's garden/yard (Plate 1) where it was first recorded on 28 June 2012 (Murray, 2013). It is noteworthy that the record on 8 September 2020 is from mature 4th instar larvae and pharate pupae retrieved from accumulated wet organic debris that had been causing a blockage in the gutter of the house roof (approximately 8m above ground

level). It appears to be a multi-voltine species in Ireland with 4 to 5 generations annually between the months of March and December.

Metriocnemus (Metriocnemus) eurynotus (Holmgren, 1883)

MEATH: HA8 - Meadesbrook-1, ♂ and Pe, 14 April 2020.

There are two previous records of this semi-terrestrial species at Meadesbrook, in September 1979 and October 2009. It is also known in HA7 in County Meath from collections in March and April 1968 and in March 1995.

Parakiefferiella fennica Tuiskunnen, 1986

DONEGAL: HA37 - Lough Eske, Blue Stack Mountains, Pe, 14 July 2009, leg. EPA.

This species is only known in Ireland from Lough Eske from pupal exuviae collected in April 2009 by field research officers of the EPA (Murray, 2012b; Murray *et al.*, 2018). This second record comes from recent re-examination of bulk samples from the month of July at the same location.

Parametriocnemus stylatus (Spärck, 1923)

MEATH: HA8 - Meadesbrook-2, Pe, 21 April and 4 May 2020.

This species is known from 190 localities throughout Ireland. There are three earlier records from the present site, the first in November 2005.

Psectrocladius (Allopsectrocladius) obvius (Walker, 1856)

LONGFORD: HA26 - Ballymahon, Center Parc, Pe, 7 March 2020.

This species is mostly found in standing waters in ponds, pools and in littoral regions of lakes. It is now known from 57 locations throughout the country. This is the second record of the species in HA26 and County Longford but there are other records in HA26, in County Roscommon and County Mayo.

Psectrocladius (Psectrocladius) limbatellus (Holmgren, 1869)

MEATH: HA8 - Meadesbrook-1, ♂ and Pe, 29 March, 15 April and 2 September 2020.

There are five previous records of this species at this location between 1999 and 2018, four from collections in the month of April and one in July. It is a species with broad ecological requirements that has also been reported in association with *Zavrelimyia nubila* (see above) from urban fountains in Sweden (Hamerlik and Bukvová, 2015).

Psectrocladius (Psectrocladius) sordidellus (Zetterstedt, 1838)

LONGFORD: HA26 - Ballymahon, Center Parc, Pe, 7 March 2020.

There are records of this species from 97 locations in Ireland. This is only the second record in County Longford although there are six previous records in HA26 (Murray, 2018; Murray and Ashe, 2017; Murray and O'Connor, 2018).

Rheocricotopus (Rheocricotopus) fuscipes (Kieffer, 1909)

MEATH: HA8 - Meadesbrook-2, Pe, 2 February 2020.

This species is widespread in Ireland with records from 108 locations mostly in streams and rivers. There are four previous records of the species at this site, the first of which was on 31 May 1974.

***Smittia contingens* (Walker, 1856) Confirmed for HA8**

MEATH: HA8 - Meadesbrook-1, ♂ and Pe, 29 February 2016.

This species is previously on record from County Meath in the adjoining HA7 (Murray, 2016). In tabulation of records in the Hydrometric Areas of Ireland, Murray *et al.* (2018, p. 138) included *Smittia contingens* in HA8 based on this unpublished record at Meadesbrook. The details are given here to validate the record of the species in HA8.

***Tvetenia discoloripes* (Goetghebuer & Thienemann, 1936)**

MEATH: HA8 - Meadesbrook-2, Pe, 1 January, 2 February, 1 and 5 May 2020.

Tvetenia discoloripes is known from 65 locations throughout Ireland. It has been documented previously from this small stream at Meadesbrook on seven occasions since May 1974.

Subfamily CHIRONOMINAE

[Unless stated otherwise references to previous records of Chironominae in Ireland are from Murray *et al.* (2015)]

Tribe Chironomini

***Chironomus (Chironomus) luridus* Strenzke, 1959**

DUBLIN: HA9 - Castleknock, (O090370), rainwater filled plastic dustbin ♂ and Pe, 22 April 2020, leg. J. P. O'Connor. **MEATH: HA8** - Meadesbrook-1, ♂ and Pe, 14 April and 8 September 2020.

This species has been previously recorded at both of the above locations, once at Castleknock and on ten previous occasions at Meadesbrook.

***Chironomus (C.) piger* Strenzke, 1956 New to County Longford**

LONGFORD: HA26 - Ballymahon, Center Parc, Pe, 7 March 2020.

There are comparatively few records in Ireland of *Chironomus (C.) piger* and this is the first record of the species in County Longford and a third record for HA26. Two records reported in HA26 from County Roscommon (Murray, 2018) were not available for inclusion in the review and checklist of Irish Chironomidae (Murray *et al.*, 2018), published in May 2018, that was based on distribution records up to December 2017. The species is now known from 30 locations, including this record at Ballymahon.

***Chironomus (C.) plumosus* (Linnaeus, 1758) New to County Longford**

LONGFORD: HA26 - Ballymahon, Center Parc, Pe, 7 March 2020.

This species is common in eutrophic waters and is known from 73 locations in Ireland. It has not been reported previously from County Longford although there are five records from HA26,

the most recent of which was reported in Murray and O'Connor (2018) from Lough Ree which is bordered by parts of County Roscommon (west shoreline) as well as Counties Longford and Westmeath (east shoreline).

***Dicrotendipes notatus* (Meigen, 1818) First record for HA8**

MEATH: HA8 - Meadesbrook-1, ♂, 1 May; ♂ and Pe, 6 May and 8 September 2020.

An adult male *Dicrotendipes notatus* was caught on the wing on 1st May. On further investigation of nearby water tanks exuviae and an emerging adult male were collected five days later. Sampling the same tank four months afterwards exuviae and a drowned adult male were also obtained. This species is already documented from 19 locations in Ireland (Murray *et al.*, 2018). There are no previous records from HA8 but it is known in HA7 in County Meath from an animal drinking trough. The majority of Irish records are from lakes, ponds and slow-flowing rivers but there are several records from small artificial habitats, such as drinking troughs or rain-filled water tanks similar to the present record.

***Microtendipes chloris* (Meigen, 1818)**

MEATH: HA8 - Meadesbrook-1, Pe, 11 and 20 April 2020.

Microtendipes chloris was first recorded at this site in May 2006. The earliest record of the species in Ireland is from a pharate pupa collected in 1947 at Bohernabreena Reservoir, County Dublin (HA9) that was identified to genus level only as *Microtendipes* sp. by Fitzgerald (1947). A slide preparation of the pupa, discovered in the collections of C. F. Humphries, was identified to species level by the author and reported in Murray *et al.* (2015).

***Microtendipes pedellus* (De Geer, 1776) New to County Longford**

LONGFORD: HA 26 - Ballymahon, Center Parc, ♂ and Pe, 7 March 2020.

This is a widely distributed species in Ireland with six previous records in HA 26, one each in Counties Cavan, Leitrim and Westmeath and three in County Roscommon, (Murray, 2018; Murray and O'Connor, 2018). The collections from the lake at Center Parc provides the first record of *Microtendipes pedellus* in County Longford.

Tribe Tanytarsini

***Micropsectra notescens* (Walker, 1856)**

MEATH: HA8 - Meadesbrook-1, ♂ and Pe, 22 March and 8 May 2020.

Micropsectra notescens is documented from 47 locations in rivers, streams and ponds and Ireland. There are eight previous records at Meadesbrook, the first in March 1996. The earliest record from County Meath was in HA7 in May 1982.

***Micropsectra pallidula* (Meigen, 1830)**

MEATH: HA8 - Meadesbrook-2, Pe, 1 January, 2 February and 2 May 2020.

Micropsectra pallidula is widely distributed in Ireland with records from 116 locations throughout the country. There are six previous records at Meadesbrook, the first in July 1968 and the most recent, until now, in May 2019 (Murray, 2019a).

***Micropsectra rosiventris* (Kieffer, 1909)**

MEATH: HA8 - Meadesbrook-1, Pe, 10 October 2019 and 8 September 2020.

Micropsectra roseiventris is known from 51 locations in Ireland in ponds, bog pools, ditches, lake littoral regions and slow flowing rivers. There was one previous record at Meadesbrook, from November 2005.

***Tanytarsus gregarius* Kieffer, 1909**

DONEGAL: HA38 - Lough Nageeragh, Pe, 26 October 1985, leg. C. Duigan.

All existing records of this species in Ireland, as pupal exuviae or adult males, are from collections between the months of March and October. The species is already known from seven locations in HA38 in County Donegal from collections between July and the first week in September in the years between 1985 and 2002. The record from Lough Nageeragh during the last week of October in 1985, in recently examined formalin preserved bulk sample collections of Cladocera by Catherine Duigan (Duigan, 1989), is a new location for the species in Donegal and extends, by several weeks, the emergence period of the species in the county.

***Tanytarsus sylvaticus* (van der Wulp, 1859) New to County Mayo and HA32**

MAYO: HA32 - Westport Woods Hotel Grounds, ♂, 7 March 2018.

Tanytarsus sylvaticus is a seasonal univoltine species with maximum emergence in spring during the month of April (Reiss and Fittkau, 1971). The species is known at five locations in Ireland, from collections during the months of March and April only, in Counties Cavan, Derry (Londonderry), Kildare and Monaghan in HAs 3, 9, 26 and 36 (Murray *et al.*, 2018). This record from March 2018, extends the known distribution of the species westwards in Ireland and is the first record of the species for HA 32 and County Mayo

***Tanytarsus usmaensis* Pagast, 1931**

MEATH: HA8 - Meadesbrook-2, Pe, 5 May 2020.

There are 30 records of *Tanytarsus usmaensis* in Ireland. The first record in County Meath was from the River Boyne in HA7 in August 1988. There is one previous record in HA8, at Knock Pond, near Balrothery, in the bordering County Dublin.

Summary

Distribution data are given for 32 species of Chironomidae. *Apsectrotanypus trifascipennis* is a new record for County Meath and HA8 and *Limnophyes gurgicola* and *Dicrotendipes notatus* are documented for the first time in HA8. Three species, *Chironomus* (C.) *piger*, *Chironomus* (C.) *plumosus* and *Microtendipes pedellus* are recorded as new for County Longford and

Tanytarsus sylvaticus is recorded for the first time in County Mayo and HA32 while distribution data is given for *Smittia contingens* to validate its record for HA8.

Acknowledgements

I thank Dr J. P. O'Connor for specimens provided from Castleknock and W. A. Murray for constructive criticism of the text and proof reading.

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PLATE 1. Meadesbrook, Ashbourne, County Meath. Some rainwater-filled containers providing habitats for Chironomidae. Top left: tank. Top right: bucket and *Metriocnemus* larvae. Bottom: bird bath and pan. Photographs © D. A. Murray.

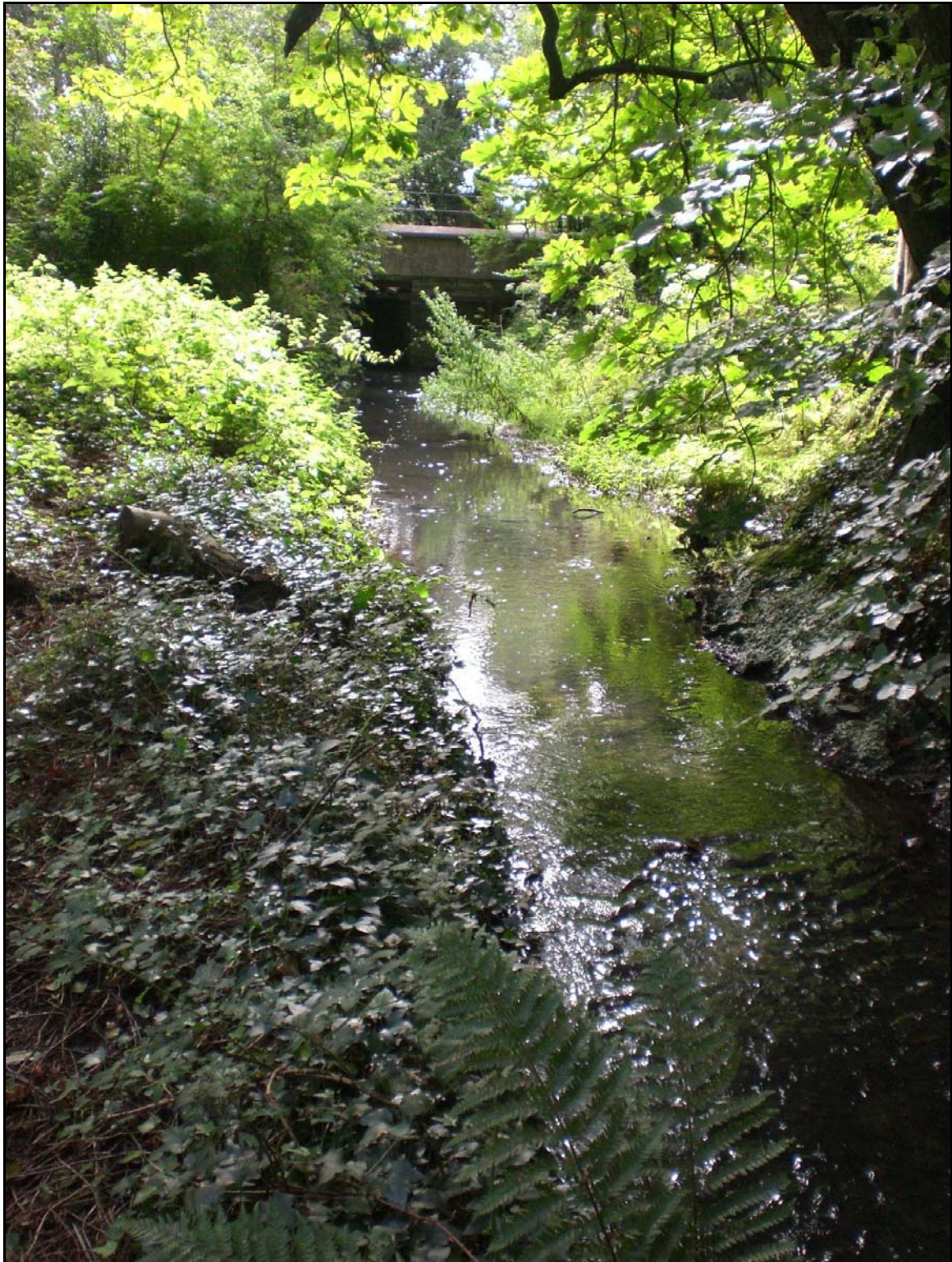


PLATE 2. Meadesbrook stream, Ashbourne, County Meath. Photograph © D. A. Murray.